16P312 (Pages: 2) Name……

Reg. No……

THIRD SEMESTER M.Sc. DEGREE EXAMINATION, NOVEMBER 2016

(CUCSS - PG)

(Chemistry)

CC15P CH3 E01 - SYNTHETIC ORGANIC CHEMISTRY

(Chemistry)

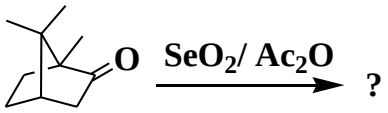
(2015 Admission Onwards)

Time: Three Hours Maximum: 36 Weightage

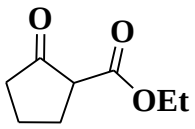
Section A

(Answer ***all*** questions. Each question carries **1** weightage)

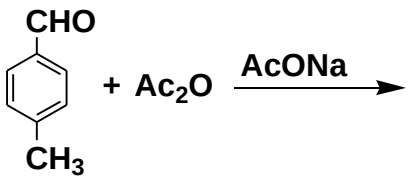
1. What is meant by functional group interconversion? Illustrate with an example.
2. What is oxone? Give any one synthetic applications of oxone.
3. What are synthons? Illustrate with an example.
4. Give the mechanism of Heck reaction?
5. What is TEMPO? Give any one synthetic applications of TEMPO in organic synthesis.
6. Explain the significance of hydroboration reactions in organic synthesis?
7. Predict the product formed when styrene is refluxed with formalin and conc. H_2SO_4?
8. What are Mannich bases? Give any one synthetic application of Mannich bases.
9. Give the mechanism of Negishi coupling.
10. What will be the product formed in the following reaction.



11. Write the scheme for the synthesis of the following compound



12. Identify and complete the following reaction.

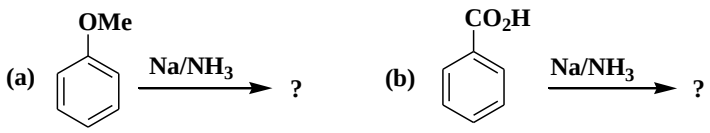


(12 x 1 = 12 weightage)

Section B

(Answer ***any eight*** questions. Each question carries **2** weightage)

13. Give a method for the synthesis of (a) Azepines (b) Benzimidazole.
14. Explain chemo-, regio-, and stereo- selectivities using suitable examples.
15. What are the products formed in the following reactions? Explain.



16. Draw the retrosynthetic scheme for benzocaine starting from toluene.
17. Explain the stereoselectivity of Prévost and Woodward dihydroxylations.
18. Give an account on the catalytic hydrogenation of alkenes.
19. Explain the role of PTC in organic synthesis?
20. Write a short note on the synthetic applications of (i) $Pb(OAc)_4$ and (ii) PCC
21. Explain the mechanism of Sonogashira cross coupling reaction.
22. What is umpolung? Explain its synthetic utility with a suitable example.
23. What is Gilman reagent and what are its synthetic applications?
24. Write a note on combinatorial chemistry.

(8 x 2 = 16 weightage)

Section C

(Answer ***any two*** questions. Each question carries **4** weightage)

25. Discuss the general principles of reterosynthesis. Explain one group and two group C-C disconnections.
26. Outline the mechanism of (a) Darzens condensation (b) Robinson annulation (c) Wittig reaction and (d) Aldol condensation.
27. Discuss the synthetic applications of organosilicon compounds and organoboranes.
28. Discuss the retrosynthetic analysis and synthesis of Longifolene.

(2 x 4 = 8 weightage)

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